

ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Catalytic Construction Co., Philadelphia, has been selected by the USAEC's Oak Ridge operations office as architect-engineer on three new projects at the National Laboratory at Oak Ridge. They include a radioisotope development laboratory, a transuranium laboratory, and a building to house a 10-Mev tandem Van de Graaff accelerator. Over-all cost of the three projects is estimated at \$5 million; this includes cost of the accelerator which has been ordered from High Voltage Engineering Corp., Burlington, Mass. Fixed price construction bids will be invited in May of next year. (Other CONTRACT NEWS, p.2 this LETTER.)

Quebec Lithium Corp. has now "temporarily" suspended its mining and milling operations; it has a stockpile of spodumene concentrate on hand sufficient to produce about two million lbs. of lithium carbonate. The suspension of operations is result of refusal of Lithium Corp. of America to accept further shipments of the concentrate which were to come to the U. S. company at the rate of 17,000 units per month until Mar. 1, 1962 as specified in March, 1959, contract between the two firms. Quebec Lithium has started suit in U. S. courts for contract damages in the amount of \$4,477,924 it allegedly has suffered as result of Lithium Corp.'s actions. (Cancellation of Lithium Corp.'s USAEC contract put firm in this position, as almost all its production had been going to the Commission for its lithium-6 isotope extraction process. Quebec Lithium, although supplying the glass industry, had counted on the U. S. firm to take nearly 90% of its total spodumene concentrate output.) Meanwhile, Quebec Lithium is continuing construction work on its refinery and hopes to start production of lithium carbonate early this January using a new process of lithium extraction requiring no sulphuric acid or lime. (Other BUSINESS NEWS, p.3 this LETTER.)

United States and Soviet Union agreement for a reciprocal program for exchange of unclassified information and visits of scientists in the field of non-weapons nuclear development has been formally set out in a memorandum-addendum to the U.S. - U.S.S.R. Scientific, Technical, Educational and Cultural Exchange Agreement for 1960-61. John A. McCone, USAEC chairman, and Prof. V. S. Emelyanov, head of the U.S.S.R.'s Main Administration for Utilization of Atomic Energy signed the memorandum in Washington last fortnight. It provides for exchange of information and scientist visits from 10-15 days on such activities as controlled thermonuclear research; power reactors; and high energy physics, and may be enlarged later to include joint projects. These joint projects may take the form of work on controlled thermonuclear reactors; new approaches to waste disposal problems; development of nuclear standards; the design and construction of a large accelerator of novel type; and the development of nuclear standards. The International Atomic Energy Agency is to receive abstracts of reports exchanged in the program, for the general use of its members, and will be asked to have a meeting early in 1960 to discuss these joint projects.

ATOMIC ENERGY FINANCIAL NEWS...

URANIUM RECOVERY PROFITABLE FOR GOLD PRODUCER: Working profit from uranium sales for year ended June 30, 1959 had increased to £1,704,211 from £1,580,348 the previous year for Blyvooruitsicht Gold Mining Co., Ltd., of Johannesburg, S.A. Recovery was from gold slimes, with tonnage of slime treated and uranium output of 668,985-lb. slightly higher than that of last year, the chairman has now told the shareholders. (Total working profit from gold, uranium and sulfuric acid was £8,241,521, the highest recorded by the company. Sales of uranium are made to the Combined Development Agency, through the S.A. Atomic Energy Board.)

DIVIDENDS DECLARED BY CANADIAN URANIUM PRODUCERS: Pronto Uranium Mines last fortnight declared its third dividend, of 50¢ per share, payable to shareholders of record Dec. 8, 1959. Pronto was the first of the Elliot Lake area uranium producers to pay a dividend; this was 75¢ a share last year. Pronto holds original contract, with extension, which will permit continuing operation at current rate of production to March, 1962.

Dividend of \$1.00 per share payable to shareholders of record December 11, 1959 has been declared by Preston East Dome Mines, Ltd. Last dividend paid by Preston in July, 1957, was from its gold mine earnings; this mine, in the South Porcupine district of Ontario, is still operating. However, Preston holds approximately 65% of Algom Uranium Mines outstanding shares, and Algom recently declared a \$2.50 dividend. This Preston dividend is substantially the return to Preston shareholders of the Algom dividend.

BIDS ASKED, CONTRACTS AWARDED...

BIDS ASKED: Bids have been invited from industry sources by the Maritime Administration to provide transport services of spent nuclear fuels from the NS Savannah pier side to USAEC reprocessing site at Oak Ridge, Tenn. Proposals, which must be made before the January 4, 1960 deadline, should be addressed to Nuclear Projects Officer, Room 4917, GAO Building, Wash. 25, D. C.

CONTRACTS EXTENDED: Contract under which the USAEC purchases uranium concentrates from Kerr-McGee Oil Industries, Inc., Shiprock, N.M., has been extended by the Commission to June 30, 1965 or earlier if total concentrates in contract are delivered before then. The new contract replaces one which ended October 31, 1959, and which had been signed August 17, 1953. (The Shiprock mill is now closed while it is being converted to a new solvent extraction system which is not only more efficient than the older method but will enable recovery of high purity vanadium concentrates from the processed uranium ores. When onstream, the mill will operate at its same daily rated capacity of 300 tons of ore. About 85% of its ores come from mines in the Lukachukai mountains on the Navajo Indian reservation. Kerr-McGee also has a 56% interest in the 3,300 tons per day Kermac Nuclear Fuels Corp. mill at Ambrosia Lake, N.M., which holds a USAEC contract running to December 31, 1966.)

CONTRACTS AWARDED: Contract for permanent radiation monitoring system for the Enrico Fermi nuclear power plant has been awarded Tracerlab, Inc., Waltham, Mass., nuclear instrument manufacturer. Award was made by Power Reactor Development Co. which is building the nuclear portion of the Fermi plant located near Monroe, Mich.

Contract to supply switchgear to connect Britain's Central Electricity Generating Board's nuclear power station at Trawsfynydd, North Wales, to the national grid, has been awarded Associated Electrical Industries. Some £900,000 worth of gear which will be supplied will be made at the Trafford Park, Manchester works of A.E.I. When installed, it will control the 500,000 electrical kilowatt output for which the new plant is designed.

Contract in amount of \$1,678,920 has been awarded by Argonne National Laboratory for construction of two buildings to house new research facilities for the Laboratory's enlarged fast breeder reactor program. Award was made to Joseph J. Duddy Co., Chicago. Two of the units to be housed are critical assemblies: zero power reactor VI, and zero power reactor IX. The other facility--"Juggernaut"--is a low flux special purpose research reactor scheduled to be completed late in 1960.

An additional \$5,250,000 order has been awarded Westinghouse Electric Corp. under a U. S. Navy contract for initial work on launching systems equipping four nuclear-powered submarines to fire the Polaris ballistic missile. This newest order brings to approximately \$45 million the total Navy awards to Westinghouse for development and production of Polaris launchers.

ATOMIC ENERGY BUSINESS NEWS...

EXTENT OF URANIUM PRODUCTION IN U.S. REVEALED: Uranium production and ore reserve figures in the U.S., made public for the first time, show the growth of this industry during period 1948-1959 (June). In 1948, ore reserves were estimated at 1 million tons. Measured, indicated and inferred ore reserves are now placed at 88 million tons. While uranium ore production was 54,000 dry tons in 1948, it had risen to over 6 million dry tons by 1959. Ore fed to mills in 1948 amounted to 52,000 tons; in 1959 it had gone to over 6 million tons. Concentrate purchases by the USAEC in 1948 were \$1.7 millions worth; this had risen to \$280 million in purchases by 1959. In 1948 estimated value of uranium processing plants was \$4.2 million; by 1959 it had become \$156 million. From 650 as the total number of employees working in uranium processing mills in 1948, by 1959 the total had become 3,185.

NUCLEAR POWER PROJECT AT HALF-WAY MARK: Canada's \$32 million nuclear power demonstration project, being built by Atomic Energy of Canada, Ltd., Canadian General Electric Co., Ltd., and Ontario Hydro, is at the half-way mark with contractors now installing mechanical and electrical equipment in the powerhouse. The 20,000 electrical kw plant, using natural uranium as fuel and heavy water as coolant and moderator, is being built some 20 miles upstream from A.E.C.L.'s Chalk River establishment. Main purpose of the plant, Canada's first, is to provide experience in design, operation, etc., preliminary to the first full-scale 200,000 kw nuclear power plant (CANDU) which is scheduled for operation near Kincardine, on Lake Huron, by late 1964 or early 1965.

ATOMIC ENERGY PATENT DIGEST...PATENTS ISSUED November 17, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:

(1) Ionization chamber. Robert G. Davis, inventor. No. 2,913,614 assigned to E. K. Cole, Ltd., Southend-on-Sea, England. (2) Particle accelerator. Wilson S. Geisler, Jr., inventor. No. 2,913,619 assigned to Applied Radiation Corp., Walnut Creek, Calif.

PATENTS ISSUED November 17, 1959 to GOVERNMENTAL ORGANIZATIONS: (1) Method of preparing plutonium tetrafluoride. R. L. Breede, H. H. Hopkins, Jr., inventors. No. 2,913,307 assigned to USAEC. (2) Method of separating niobium from tantalum. M. A. Steinberg, inventor. No. 2,913,379 assigned to USAEC. (3) Radioactive battery. J. H. Birden, K. C. Jordan, inventors. No. 2,913,510 assigned to USAEC. (4) Wide band regenerative frequency divider and multiplier. E. F. Laine, inventor. No. 2,913,670 assigned to USAEC.

PATENTS ISSUED November 24, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:

(1) Process of purifying graphite. Helmut Ulrich, inventor. No. 2,914,383 assigned to Graphitwerk-Kropfmuhl AG, Munich, Germany. (2) Process for irradiating flat stock organic polymers. F. W. Hammesfahr, R. L. Hatch, inventors. No. 2,914,450 assigned to General Electric Co. (3) Conversion of organic compounds by radiation. H. G. Schutze, A. D. Suttle, Jr., inventors. No. 2,914,452 assigned to Esso Research and Engineering Co., Elizabeth, N.J.

PATENTS ISSUED November 24, 1959 to GOVERNMENTAL ORGANIZATIONS: (1) Elution of uranium values from ion exchange resins. R. H. Kennedy, inventor. No. 2,914,378 assigned to USAEC. (2) Removal of certain fission product metals from liquid bismuth compositions. O. E. Dwyer, H. E. Howe, E. R. Avrutik, inventors. No. 2,914,399 assigned to USAEC. (3) Method for soldering normally unsolderable articles. J. C. McGuire, inventor. No. 2,914,425 assigned to USAEC. (4) Heat treated uranium-niobium alloys. R. K. McGeary, W. M. Justusson, inventors. No. 2,914,433 assigned to USAEC. (5) Nuclear reactor fuel element. D. H. Gurinsky, R. W. Powell, M. Fox, inventors. No. 2,914,454 assigned to USAEC. (6) Thermocouple device for measuring temperature in a reactor. W. R. Kanne, inventor. No. 2,914,594 assigned to USAEC. (7) Time calibrated oscilloscope sweep circuit. V. L. Smith, H. K. Carstensen, inventors. No. 2,914,697 assigned to USAEC.

MEETINGS, COURSES, CONFERENCES...

MEETINGS: A session on nuclear energy is planned for the Society of Automobile Engineers' annual meetings Jan. 11-15, 1960 in Detroit. Paper (no.123B) on Propulsion Sub-System Areas Requiring Definition and Development in Preparation for Operational Nuclear Rockets will be presented by R. B. Clapper and A. Corbin. J. J. Grebe and D. E. Harmer will present paper (no.123A) on Radioactivity-The Guide and Energy for Future Automotive Safety. Information on availability of papers, and full program, may be obtained from SAE, 485 Lexington Ave., New York 17, N.Y.

PRODUCTS, PROCESSES, INSTRUMENTS...

PRODUCT NEWS:- New stainless steel glove box, Model A-13, developed and being marketed by S. Blickman, Inc., Weehawken, N.J., provides super-dry environment for handling organic or radioactive chemicals and modern metals that cannot tolerate humidity. Use of a Freon-tight main chamber, and an oil-free gas-drying system is said to allow the dew point to be brought down to minus 75-deg. F. in 30-minutes. The air is dried by passing through molecular sieves (1/8-in. pellets) in a drying tower and recirculating continuously at approximately 10 cfm into the main chamber. The glove box includes a vacuum-tight autoclave-type airlock, which contains two valves for admitting and evacuating inert gas and a 1-in. vacuum pump-out connection for evacuating air. With a mechanical pump, the airlock can be pumped down to approximately 50 microns, with a leak rate that will not exceed 1/2 micron per minute, the manufacturer states.

Single channel emission spectrometer, developed by National Spectrographic Laboratories, Cleveland, Ohio, can be used for continuous analysis of the atmosphere to determine concentrations of such toxic materials as beryllium, etc. The firm now has a prototype model, and expects to make a commercial unit early next year.

MANUFACTURERS' NEWS:- The medical radioisotope business of Atomic Research Laboratory, Los Angeles, has been acquired by Volk Radiochemical Co., Chicago. Volk, which has been supplying similar products to Midwestern users, will now have a west coast outlet. Under the new arrangement, ARL becomes Volk's western laboratory. ARL's other business--consultation, research and distribution of non-medical isotopes --are not affected by the purchase.

Lithium Corp. of America, Minneapolis, which lost a substantial portion of its business when USAEC cancelled its lithium salts purchase contract (this LETTER, p.1), plans to acquire Fulton-Irgon Corp. for \$252,000 of convertible debentures. Stockholders of the Fulton firm (which is privately controlled), approved terms at a special meeting Nov. 27. Fulton-Irgon, develops and produces cartridge-actuated devices, and evaluates propellant systems and propellants. It is also consultant in field of rocketry to several chemical and aircraft companies. Current backlog is more than \$500,000 and 1960 sales are expected to exceed that figure. Joseph Irgon and David Lippmann, officers of the firm, had been with Reaction Motors, Inc., prior to founding the firm in 1956 with David Fulton, a mathematician.

Ray Proof Corp., Stamford, Conn., which recently was acquired by Nuclear Development Corp. of America, White Plains, N.Y., is now being operated as an independent subsidiary; it is wholly owned by Nuclear Development. Ray Proof produces radiation shielding materials and allied products.

PROCESSES & TECHNIQUES:- A technique to diagnose diseases of the bone, known as an osteogram, and using tracer amounts of strontium-85, has been developed by Norman S. MacDonald, associate professor of biophysics, University of California Medical School, Los Angeles. Since the strontium is rapidly absorbed by bone when it is injected into the body, the rate of absorption or deposition of the strontium can be readily measured by placing scintillation detectors over the bone area to be studied. Dr. MacDonald has reported that the osteogram may be used not only for diagnosing bone disease, but for following progress of repair of bone fractures, and in obtaining additional basis knowledge about bone chemistry.

A new type of reactor safety containment, known as pressure suppression, which shows considerable promise over large dry containment vessels was described last week by engineers from General Electric Co., and Pacific Gas & Electric Co., at the annual meeting in Atlantic City of the American Society of Mechanical Engineers. Authors of the report (C. H. Robbins of GE's atomic power equipment department, San Jose, Calif., and C. C. Wheelchel, of PG&E) said that pressure suppression involves use of a dry enclosure around the reactor with a water pool connected to the dry enclosure by vents or pipes. The water pool condenses steam which might be released by a reactor accident. They said that plans to use this development have been submitted to the USAEC seeking approval for its use on the Humboldt Bay nuclear power plant which PG&E is building at Eureka, Calif. (Most water-cooled nuclear reactors have been enclosed in large spherical or cylindrical pressure vessels to contain radioactive material in the event of a failure of the primary reactor system.)

MANUFACTURERS' LITERATURE:- Bulletin C, of Victoreen Instrument Co., Cleveland 3, Ohio, describes that firm's scalars, survey meters and other nuclear instrumentation.

NEW BOOKS & OTHER PUBLICATIONS...

Nuclear Metallurgy. Vol. VI. Proceedings of symposium on effects of irradiation on fuel and fuel elements, as sponsored by Metallurgical Society, American Institute of Mining, Metallurgical, and Petroleum Engineers. IMD Special Report Series, No. 9. -- AIME, 29 W. 39th St., New York 18, N.Y. (\$7.00)

Nucleonic Fundamentals. David B. Hoisington, U. S. Naval Postgraduate School. Intended as a text for an undergraduate survey course. (\$9.50)...Radiation Hygiene Handbook. Hanson Blatz, New York City Office of Radiation Control, editor. Useful reference guide. (\$27.50)--McGraw-Hill Book Co., 330 W. 42nd St., New York, N.Y.

Survey of Atomic Energy Development in 14 Countries. Information on work in U. S., Denmark, Finland, Great Britain, Italy, Canada, Holland, Norway, Switzerland, Sweden, Belgium, France, W. Germany and Austria.--Sveriges Mekanförbund, Fack, Stockholm 16, Sweden. (n/c).

Selected Data on Uranium Alloys. Helen C. Friedemann and Henry H. Hausner. Bibliography of 470 references arranged by author's names; binary phase diagrams of 27 alloys; and other tables and graphs. 76 pages.--Sylvania-Corning Nuclear Corp., Bayside, L.I., New York. (\$1.00)

Bibliography of the Stable Isotopes of Oxygen. D. Samuel and P. F. Steckel. Papers published on the subject through 1957. 224 pages.--Pergamon Press, 122 E. 55th St., New York 22, N.Y. (\$7.50)

The Industrial Challenge of Nuclear Energy. Vol. 1 of the Proceedings of the Stresa Conference on industrial prospects in nuclear energy, held in May, 1959, by the European Nuclear Energy Agency, of the O.E.E.C. (The complete proceedings are being published in four parts, of which this is the first.)--O.E.E.C. Mission, 1346 Conn. Ave., N.W., Wash. 6, D.C. (\$3.00)

Expanding the Utilization of Radioisotopes and Nuclear Techniques in Food Toxicology and Processing. Report of work done under USAEC-sponsorship at M.I.T. by John H. Rust of department of food technology. No. AECU-4327. (75¢)...Radioisotopes at Work for Agriculture. Survey made for the USAEC by Stanford Research Institute people of applications of radioisotopes by agricultural experiment stations, government laboratories, research institutes, and commercial firms manufacturing agricultural chemicals. No. SRIA-9. 200 pages. (\$3.50)...Symposium on Occupational Health Experience and Practices in the Uranium Industry. Proceedings of 5-day symposium sponsored by the USAEC Oct. 15-17, 1958, in New York. No. HSAL-58. (\$4.00)...Investigation of a New Dye-Glass Gamma Radiation Dosimeter. Report of work done at Wright Air Development Center's materials laboratory with Corning's type 7930 glass. No. PB-151964...Effects of Nuclear Radiation Upon the Microwave Properties of Certain Ferrites. Work done at Naval Research Laboratory. No. PB-151691. 10 pages. (50¢)...Report of the Sodium, Heavy-Water Reactor Task Force. An evaluation of this type reactor on the basis of its technical feasibility and its potential for economical production of electrical power. No. TID-8515. (50¢)--Office of Technical Services, Washington 25, D.C.

Obtaining a System of Dosimetry. Experimental evaluation by S. I. Taimuty at Stanford Research Institute of some 18 integrating dosimeters. No. PB-142511. 105 pages.--Library of Congress, Wash. 25, D.C. (\$5.70, microfilm; \$16.80, photostat.)

Extractive Metallurgy of Euxenite. Report of studies at the Bureau of Mines' Albany, Ore., metallurgy research center. Chlorination, solvent extraction, and hydrometallurgical techniques as related to recovery of high-purity columbium, and tantalum oxides, rare-earth oxides, and uranium oxide. Report No. 5531.--Bureau of Mines, 4800 Forbes Ave., Pittsburgh 13, Pa. (n/c).

United Kingdom Atomic Energy Authority & Associated British Work on Controlled Thermonuclear Reactions. Bibliography of some 249 references by C. S. Sabel, U.K. AEA Research Group. No. AERE-Bib.124.--H.M. Stationery Office, Cornwall House, London S.E.1, England. (4s 6d)

Annual Financial Report U.S. Atomic Energy Commission. Covers the fiscal year 1959, ending June 30, 1959.--Sup't. of Documents, Wash. 25, D.C.

Sincerely,

The Staff,
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